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ABSTRACT

An intensive research program was carried on which aimed at funding a structure in which the open school would make the teaching of cinema and television conform to the principle that school not only prepares students for their life, but is life in itself. Publication of case studies on parameters such as autonomy, needs assessment, learning cycles, values and objectives, and facilitators was projected to result from the research. This paper has three sections: (1) the problems and working hypothesis of an open learning system, (2) theoretical basis for open learning systems, and (3) static analysis of the system. The problems that open courses have brought to school administration, and the implications for reorganizing administration into a service approach and promoting the open system administration in the future are also discussed. (HAB)

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Research Development and Implementation when an Open System Is Used to Train Educational Media Producers.

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INTRODUCTION

The following text is an outline, a description, written for the benefit of the delegates attending the AECT Conference (1976). It is an extract from other writings by Constantin Fotinas.

At this point an action or field research is being conducted by a group of researchers under the direction of Constantin Fotinas and André Morin. Most of the early pionneers are still working with this group: Zarmine Torossian, Robert Patenaude and Jean-Claude Boudreault. Françoise Bray and more recently two professors, Richard Prégent (Université de Montréal) and Stéphanie Dansereau (Université du Québec à Montréal) have also joined the group. Since June 1975 the research is financed partly by the Ministry of Education (Québec).

Intensive research is being carried on this year primarily on the learning styles in relation to documentary resources, the values clarification approach and a thorough analysis of teaching objectives in an open system. Other fields are being explored. The group hopes to publish case studies on parameters such as autonomy, need assessment, learning cycles, values and objectives, facilitators, and so on.

This type of open course has brought problems to administration: one of the implications is the necessity of reorganizing administration into a service and promoting the open-system administration in future years. This is the theme of Pierre Pérusse's exposé.

As director of the research, I started work on this project after study and research on Instructional Technology at the University level for O.E.C.D. in 1974-75. It did appear to me as one of the most innovative courses which gained my attention, being a serious attempt in the line of Dr. Faust's address in Atlantic City (AECT, 1974). He has been proclaiming that "breakthrough schools" should be actually centered on the student, not only in its objectives but in its strategies and evaluations.

The following pages by Professor Fotinas must be judged as a tentative delineation for the benefit of the audience and not as a definitive text.* It is with feedback sent by readers that we will refine our project and also exchange ideas on the application of open system education centered on the student.

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* The text has been edited by Richelle Houtakker.

AN ALTERNATIVE OPEN SCHOOL

Toward a "Pédagogie Sauvage" based on the General Theory of Open Systems

By Constantin Fotinas

If we agree with great contemporary educators such as Illich and Fr re that the school not only prepares students for their life, but is life in itself, then let us try to make this life worth living.

Such a life would be possible in a school whose structure and organization allows the individual to exist and express his initiative, his spontaneity and his creativity; a school that offers to the individual the opportunity to become conscious of his needs, as well as the means to satisfy them fully.

This is the framework of the research on which my team and I have been working for the last five years at the University of Montreal. Our efforts have been aimed at finding a structure with which the open school, as we call it, would make the teaching of cinema and T.V. conform to the general principle stated above. Our discussion will cover six major aspects.

PART ONE: Problem and working hypothesis

A - Teaching cinema and television: a closed educational system

The great majority of school or university departments, which teach cinema and television, wish to offer complete training. They plan students' activities in three ways:

1. The program foresees fixed subject matter and the objectives to be realized.
2. The teaching method is foressen.
3. The system foresees the pr cedures and the models of evaluation.

Due to this type of manipulation of the learning process, such an organization presents the characteristics of a closed system, in which learning is uniform and uni-dimensional.

A closed system is like themechanism of a clock, in which each part, each compoment, is provided with fixed functions and predetermined relations to the other parts. The rate of the traffic of information between the parts is very low; it always flows in one direction, from the brain or dominated part to the executive parts.

According to the latest trends in psychology, however the concept of the robot-man, on which such closed organizations are based, is replaced by a new model, viewing man, as an active personality whose basic characteristic is autonomy. In order to respect the autonomy of that personality we need a free educational system.

B - Towards an open system in education

It is, therefore, possible to suggest the hypothesis that the solution of the problem is to be found in a structure that functions in such a way as to respect all the characteristics of active-autonomous personalities. The organization suggested could be called an open system. In education, the open system should allow students freedom in three areas:

1. Free selection of the subject-matter and the objectives to be realized
2. Free choice of the methods to be used in each learning activity
3. Free choice of the procedures and the models of evaluation.

Consequently, the institution and its teachers should assume responsibility for facilitating and supporting students in their difficult efforts.

The institution should, furthermore, have the responsibility to conceive, organize and implant this open system before the arrival of the students and then to constantly evaluate and correct it. Learning, therefore, should be A LA CARTE, to satisfy the needs of each individual student.

PART TWO: Theoretic bases

To confirm the above hypothesis, it is necessary to define the theoretic bases of

a) the active-autonomous personality

and b) the open systems

A- Theory of active-autonomous personality

The theory of the active-autonomous personality is rather recent. Right after World War II, science focused its attention once more on the individual. Psycho-sociology rediscovered and redefined it, within the small group. The individual regained importance.

The parallel and prodigious progress of modern technology (especially that of electronics) influenced and oriented the definition of the individual. For their algorithmic machines, their robots, their cybernetics scientists faced the necessity of putting on paper a model of the individual. This model, representing the average individual, was divided by statistics, and it introduced in science the concept of "robot-man". In education various new teaching methods appeared: programmed instruction, micro-teaching, P.E.R.T. flow chart, the systematic approach, etc., their designs arose entirely from the model of the design robot-student.

.../4

Contrary to that approach, which leads us to a dead end, science is beginning to offer a new image of man: the model of the active personality of the autonomous individual. Developmental psychology, neo-freudian psychology, psychology of the self and theories of personality and learning, all tend to confirm that human behaviour is not dependent upon external stimuli, nor on internal instinctive impulses. The intrapsychic structures, such as cognitive structures, value systems, ideological systems, identity, conscience of the self, etc., resulting from the personal history of each individual, make a person autonomous, active, master of his destiny and creator of his environment.

Following the statements of contemporary psychology, therefore, it is impossible to foresee and describe, scientifically the specific behaviour of each student during his process of learning. Consequently, a closed educational system, one that bases its design on the concept of the robot-student, cannot satisfy the individual's needs. It cannot, therefore, fulfill his objectives.

B - General theory of open systems

What, then, is the alternative? The progress of science has allowed us to detect and study a series of different systems of organization existing in nature. Specialists have classified these systems according to their degree of complexity and according to the rate of the traffic of information, namely:

1. Static systems (e.g., crystals)
2. Systems with a clock mechanism (e.g., machines)
3. Systems with autoregulated mecanism by means of feed-back (e.g. thermostat)
4. Open live systems (e.g. cells)
5. Organic low-level systems (plants)

6. Animals
7. Man
8. Socio-cultural systems
9. Symbolic systems (e.g. fine arts-language)

The open system organization, or, to put it another way, the dynamic organization, first appears at the level of the cell, i.e. at the level of the living organism. To define this type of organization and evaluate or measure its dynamics, we need a concept of the theory of information: the concepts of the rate of the traffic of information (any type of energy) among the elements or components of the system. Static systems have no traffic of information ; closed systems have a simple, one-way, linear traffic : rectilinear or circular if feed-back is introduced.

Open systems present an intense circulation of information flowing in all directions. This is the basic characteristic of the open organization, from which all other characteristics derive.

The general theory of open systems based on research in biology human sciences, social sciences and mathematics formulates the genetic process and the properties of an open system, as follows :

When the characteristics of independent elements offer possibilities of exchange, those elements can be related to each other. Their relations, in the form of interaction, can be realized only, if in the elements are present, common stationnary values, that cause their grouping. This is how the life of the systems begins. Those interactions that are simple and linear at the start, when necessary, they can multiply and develop in chain. If this evolution continues, the system creates parts organized in sub-systems, that acquire specialized functions. The more the system grows, the more the division of labour

.../6

becomes concrete.

When the parts are multiplied, the system needs to create a dominant part, an internal centralization and hierarchy. The concept of the dominant part, of hierarchy, and of the division of labour, has nothing in common with the dictatorial master-mind that decides and commands. It is rather a co-ordinating mind, that temporarily, organizes a specific objective, based on the needs manifested by the parts, and by the system as a whole.

Finally, we should note that the objectives, on the finality of the system are also defined by its internal forces and needs (vires a tergo) and not by any exterior force (vis a fronte).

In conclusion, it appears, that a model of organization exists, which can allow to its components, to be free ; it respects their needs and is capable of reorganizing the whole system, in order to keep it alive. Science is actually, studying this model. I think that in education we should use this model, since it renders, planification and organization, compatible with freedom, hence capable of respecting the active autonomous personality. Consequently, facilitation should be the fundamental function of an open school. It should be emphasized that this function precisely is the link between the open school and the open system theory , for facilitation is the intrument, that determines, the rate of trafic of information in the school.

PART THREE : The open school - Static analysis of the system.

Static Analysis : The parts of the system.

A model of an open system organization, and planification in education, has been experimentally devised, and is being tested since 1969 in our class of cinema and television at the University of Montréal. It is neither final nor perfect. It is one of a number of possible models. Still, its results, are satisfactory and appear to prove the validity of my hypothesis, I shall,

therefore present this model, and I shall begin with a static analysis of its parts ; a dynamic analysis of the system's network, will complete this description, That will be followed by an evaluation of the results of the experimental application of the model.

The "Self-Education" of the learner constitutes the open school's stationary values, the organizational axis, around which the components are grouped; at the same time self-education is the school's objective, the system's constant that defines the system's parts and their communication.

The system's parts can be distinguished on the basis of their functions, in two groups :

A - The nuclear of the system, whichconsists of the dominant, co-ordinating elements ; and

B - The environment, which constists of all the specialized parts of the system.

A - More specifically, the nuclens consists of students and facilitators.

1 - The dominant part of the system is the student population. The co-ordination of the system (by means of all the mechanisms it disposes distribution - compensation - hierarchy - finality, etc.) is the responsibility of the learners. As this dominant part of the open school lacks experience experience in co-ordinating the system, facilitating becomes a necessary component of the nuclens.

2 - The facilitator's part consists of experienced specialists : Professors, assistants, administrators, spécialists in the field, technicians. They belong to the dominant part and, with their experience, they facilitate the co-ordination of the system by the learners.

B - The environment of the systems, consists, of all the remaining specialized parts to which the learner will relate in the process of his self-education.

Those parts fall into two sub-groups.

1 - The elements of composition contain the minimal units of raw material for the composition of individual programs.

2 - The methods of construction include models of action and techniques of composition for the individual's program.

Each sub-group contains several specialized parts. The specialization of parts is due to the number and variety of needs, indicating that principle of the division of labor.

1 - The parts of the environment that offer the elements of composition may be delineated as follows;

a - The subject-matter ; A paradigmatic matrix classifies and presents the information to be learned in the course. It serves only as a suggestion, an indication. It is understood that the matrix classifies the information available to date ; therefore it should be constanbly changed, either by introducing new items of information or by eliminating items that are no longer valid or functional. This classification is simply a method of presentation; it does not constitute any evaluation.

b - Objectives of learning strategy A paradigmatic matrix classifies the objectives to be realized by the study of the information. The objective of the learner is to develop a number of cognitive, psychomotor and affective behaviours. Each element of the matrix of the subject matter serves the development of some behaviour. The matrix of the objectives also susceptible to change serves mainly as a suggestion.

c - Equipment and furniture . This part classifies in a separate paradigmatrice matrix all the types of techonological elements necessary in learning the info.mation as well as the quantity, types and models of equipment available. It also includes checklists and directions for use.

d - Documentary resources. A matrix classifies and presents all kinds of ressources available for the information of the learner. It includes cards with information, articles, dictionaries, books, audio-visual and graphic documents, educational objects,and simulated games. Each element of the subject-matter matrix corresponds to a group of documentary resources.

e - Allocated space. The space available (classrooms, seminar-rooms, workshops, laboratories, individual cubicles) and the fixed equipment in each as well as the conditions for their use, are listed separately.

f - Administration and budgets. A separate list presents the administrative and other services (copying machines, secretaries, etc.), available to the learner, as well as the budgets allocated for the provision of furniture, the invitation of specialists, etc ; the learners are responsible for their use. The above parts of the system represent the elements of composition of the environment in which self-education can be realized. They are constantly verified and readapted to be as functional as possible. A long term experimentation could prove or disprove their validity.

2 The environment further contains the methods of construction that will help learner compose their individual programs, using the elements mentioned earlier.

a) Models of student government organization. Since the course functions as a self-governed community, this part of the system presents the models, procedures and techniques of the known types of community organization, such as Summerhill, Informal Education, Ecole Populaire, Open air School, self-government, etc. This presentation serves to help learners organize themselves into community, form committes, workshops, work tearms, etc. The basic principles of such organisations are autonomy and reciprocity.

.../10

b) Models of teaching strategy. As we believe in the active strategy, whereby self-educators learn through their own actions and their reflections on them, this part classifies and presents the models, procedures and techniques of the great schools of active education, such as concentration on interests, concentration on project, spontaneous action, analytical or global processes, individual learning, small groups, seminars, conferences, audio-visual experiences etc. The principle governing this part is that educational strategy is based on the personality of the learner. Once more, the above classification serves as a suggestion; learners can combine different elements, creating new formulae.

c) Models of organization of production are classified. Here are presented the different methods of audio-videography production (cinema and television models, procedures, techniques and design of production--direct, newsreel, feature, documentaries, underground educational etc..)

d) Models of organization of research. The models, procedures and techniques of research in audio-videography are classified here according to type of research: observation, experiment, case study, theoretic research, etc.

e) Models of evaluation and measure. As we expect the learner to evaluate his learning process and his performance, this part presents matrices, methods of analysis and evaluation, instruments of control, procedures and techniques: diaries, checklists, questionaires, etc.. The process of control and auto-evaluation develops the critical thinking of the learner.

Dynamic analysis: The system's network.

Having defined the components of the open school in a static analysis, we will now define relations among those elements, in order to reveal the system's network. In order to present fully such a composition, we would need the logic

and language of mathematics. As we are limited to verbalistic logic we shall confine ourselves to the presentation of simple relations.

Operational field.

As this part of the system can express itself only in a dynamic way, it has not been discussed earlier. It is, actually, the system's motive power. The operational basis from which the set of operations stems is the set of direct, meaningful experiences of the self-educator. Direct experience means an action and reflection that takes place in a real situation. Meaningful means that the experience is an answer to a personal need.

The experiences in a cinema course appear in the shape of an operational process composed of three phases: the mini-film, critical viewing and mini-research.

The mini-film is a very short production (1-5 minutes) that motivates the learner and causes his learning needs to appear spontaneously. The critical viewing that takes place in a general assembly makes the learner conscious of his needs by helping him to verbalize them, and leads him to formulate hypotheses for their satisfaction. The mini-research is a short research (a monograph or another film) that serves to verify the hypotheses and apply the discovered solution).

This process of three phases is used time after time by the learner, in the course of his self-education. The operational field of the system envelops the set of the parts; it constitutes the global field of the educational processes.

Some models of typical interactions between learners may help us describe the function of the system. They may also demonstrate the relations between the parts which constitute the system's network.

.../12

General model.

The following may exemplify a complete cycle of the interactions realized by the average learner.

For example, wishing to produce a mini-film, the student collects information on methods of production from part models of production. He learns to manipulate the equipment and necessary materials because of his part work with equipment and furniture. He seeks the advice of specialists from the part facilitators and produces his mini-film in the space and time allocated. During the following general assembly he presents his film and tries to identify his mistakes, using matrices from the part models of evaluation. He identifies the item of subject-matter that corresponds to any mistake (from the part subject-matter), identifies the behavioral objectives from the part objectives and at this point is aware of the problem.

With the help of specialists (part facilitators once more) he tries to formulate hypotheses; he collects documentary material on the problem (from the part documentary resources), finds information on the method of research (from the part models of research) and finally proceeds to verify the hypothesis. He then presents his mini-research in the general assembly, evaluates the results (using matrices from the part models of evaluation) and finally, is evaluated by the assembly of his co-learners and facilitators.

The cycle of interactions just described is too simple and linear. In practice, each critical point of the cycle can lead to secondary relations (chain ramifications) that lead to the following critical point in a number of ways. This simplified approach has been used for reasons of commodity.

.../13

Specific models.

Learners with different profiles show marked differences in their model of interactions. For instance:

a) A learner who has acquired some theoretic knowledge before the course will need more frequent contacts with the parts (models of production, equipment and furniture, models of evaluation, etc.). He will seek mostly technological information, as where a learner who already has some technological knowledge will present the opposite model of interactions.

b) A learner whose previous education was traditional will trace a more linear model of self-education. On the other hand, a learner with previous experience in informal education will trace a complex model of relations with all the past.

c) A problem learner unable to relate to other people -- the solitary type -- will work alone. He will frequently relate to the facilitators, for psychological reasons. A learner with the opposite life-style will work in groups and will need more counsellors.

The models of interaction presented above and there are as many models as there are groups of learners -- form complete sub-systems, and trace different networks of interactions between the parts. They co-exist synchronically and diachronically in complementary relations and form a general very complex system. This general system represents in a dynamic way the organization of the open school. A number of superimposed systemograms (graphic representations of the sub-systems of each group) could give us an idea or the general system's complexity. How can we study, improve, and help the evolution of the open school? How can we evaluate it? The answers can be provided partly by operational research.

PART FOUR: General evaluation of the experience.

To evaluate the validity of this open school system is to challenge experimental research. Results are not quantifiable but rather qualitative. Despite

the fact that action research has not yet reached high esteem, we believe that field studies and case histories are at this time the best approach to evaluating the progress and satisfaction of cinema students in their efforts to achieve autonomy.

Evaluation must be descriptive and necessarily incomplete, because long-term effects can be felt only by the person himself.

For the time being, we shall enumerate the most frequent reactions of the learners (cognitive, emotional and psychomotor)during a typical course in cinema. These data emerge from the late phase of our research (1972-1974) at the University of Montreal, where the course was given with the open school system, even though some parts of the system were not-and are not to this day-completely ready. As the preceding phase of the research (1970-1972) covered each part of the system separately, we have been able to reach some conclusions as to the validity of the whole system.

The course of cinema mentioned above is a three-credit course (sixty actual hours). It is given in the third years of the B.A. in education, with a major in audio-visual. In two years, the course was given five times to five different groups (of twenty to fifty persons) by the same facilitators and research team.

Most full-time learners were young, completing their studies for their first university degree. The majority of part-time learners, on the other hand, were teachers or scientists who wished to specialize in audio-visual. Eighty-five percent of all learners had no previous experience in cinema. Twelve percent were amateurs and five percent had worked on 16 mm productions two learners were already professionals.

.../ 15

We noted these general results as well as student reactions during a typical course:

1. First meeting of the group. Beginning of Work: Reactions are elicited. The great majority of learners do not believe in freedom in education; hence, they do not trust the open school system. They feel insecure and uneasy. A minority number ask for a directed course. Isolated cases of hostility against the facilitators occur. Another small minority, due to previous experience of informal education, show confidence. At the final vote, the majority vote for the temporary application of the open school system, but reserve the right to reconsider the matter at a later date. The organization of the self-government of the community begins with some difficulty.

2. First period of work, first week: a cycle of one mini-film, one critical viewing, and one mini-research. The period is characterized by insecurity and uncoordinated efforts in all directions. The learners embark on production spurred by curiosity and need for security. They wish to produce perfect work. They resent their mistakes, and any faiture discourages them. The majority discuss technical problems with the facilitators and begin the production without preparation. Each group works alone. Difficulties also appear at the organizational level of the teams. Most learners use a very small part of the material facilities available to them. At the general assembly, the critical viewing of the mini-film intimidates most of the learners. They also prove unable to locate the reasons for the mistakes of the work they have viewed.

3. Second period of work (second week): a cycle of one mini-film, one viewing and one mini-research. The majority demonstrate a changed attitude towards the open school system. The cases of persistent insecurity are few; apprehension has almost disappeared. Communication is established among the small groups; for the most part, it concerns their work. The learners begin to relax. They feel the need to

plan their production. They begin to understand the problems of expressing the composition of an audio-visual message, in addition to technical problems. Contacts with facilitators multiply. The learners feel the need to develop different methods of work. The cases of students who work alone, are very rare. The organization of the use of the material improves. The majority admit that the open school makes them think and make their own decisions.

4. Third period of work (third and fourth weeks): two cycles of mini-films, critical viewing, mini-research: The group is very relaxed; hostility following dissapears completely. A few still have reservations about the open school system. The general assemblies, where communication flows uninhibited, the group has no characteristics of a traditional class: learners and facilitators are friends. The majority of learners present their faitures and mistakes with humour, considering them as problem that can be solved. They are exclusively concerned with difficulties of language, expression and composition. Technology is considered as an instrument that serves the purpose of expression. The formulation of hypotheses becomes easier. There are still difficulties of methodology in mini-research. The learners feel the need to discuss the great school and theories of cinema. The mini-films spontaneously acquire elements of different styles. The learners develop personal relations with the facilitators, and show interest in their private lives. At the end of this period, the majority of learners feel that they have not covered sufficient items of the subject matter. They think that they can work faster. They give to their work twice the time that forseen by the program.

5. Last period of work (fifth week): cycle of one mini-film, critical viewing, mini-research. The end of the course, generates some uneasiness. The majority of learners think they did not manage to satisfy all the needs that the open school system made them feel. They wish to discuss and evaluate the system. Some express the opinion that they have been cleverly manipulated, and make jokes about it.

The learners demand and organize additional -unforseen- general assemblies, in order to discuss different theories of education and schools of cinema. They feel the need to view again and re-evaluate their mini-films. They think that facilitators' evaluation was not sufficiently strict. Most of them believe they have developed a methodology based on their personality. During this last period of work, the mini-film is considered mostly as research and experiment. The right attitude toward research is apparent.

6. Last meeting - Round table - Conclusions. Complete relaxation exists in harmony with a constructive attitude of criticism and evaluation of the course. According to the majority of the learners, the freedom afforded by the process, was complete, but at the first period, at least, most learners did not use it constructively. Their acquisition of learning, they realize is substantial, and its retention considerable; it is more than could be expected of an introductory course in cinema; nevertheless, they want to learn more. They manifest the desire to continue to work on this subject.

In general, in one three credit course, each team completes three to five sets of mini-film, critical viewing and mini-research. The whole class produces twenty-eight to thirty-two mini-films, represent seven to eleven different styles (documentary, direct, news reel, publicity, neo-realism, underground, neo-expressionism, gag-comedy, educational films, etc...) At the end of the course, many learners feel the need to produce longer films.

Finally, the learners express the desire to celebrate together and the party ends late in the evening in an atmosphere of warmth and affection. After the course, during visits or in their letters and postcards, the learners repeatedly say that: "the course was more than a course in cinema, It was a sort of a way of living".

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